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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,421	02/19/2004	June-Sun Kim	91539	6280
24628	7590	11/23/2005	EXAMINER	
WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			LEE, JOHN D	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,421

Applicant(s)

KIM ET AL.

Examiner

John D. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-15 is/are rejected.
- 7) ☒ Claim(s) 9-12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. §§ 119 (a)-(d) or (f). All of the certified copies of the priority documents have been received.

The drawings filed in this application on February 19, 2004, are objected to for the following reasons. In Figure 1, in order to agree with the description in the specification, numeral "25" should actually be "15". Appropriate correction is required as a part of the response to this Office action. Corrections to the drawings will not be held in abeyance.

The disclosure has not been studied to the extent necessary to discover all possible minor errors therein. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim 11 is objected to because of the following minor informality. In line 2 of claim 11, "the at least one" should be changed to "at least one" since there is presently no antecedent support for "the at least one of the first pair of rollers". Appropriate correction is required.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in – (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 7, 8, and 13 are rejected under 35 U.S.C. § 102(e) as being clearly anticipated by U.S. Patent 6,697,556 to Militaru et al. Militaru et al discloses an apparatus and method for creating a "wavy shaped" tube for receiving optical fibers, so

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that the length of fiber will be greater than the straight linear length from one end of the tube to the other. The Militaru et al tube forming technique is the same as the technique set forth in these claims: a metal tube is prepared in which an optical fiber is received; the metal tube is transferred to a longitudinal direction at a predetermined speed; and the metal tube is periodically bent so that it assumes a waved shape in the advancing direction thereof. The Militaru et al bending step includes passing the metal tube between oppositely rotating rollers (three on the bottom and two on the top) and (as the rollers are rotating) moving the two upper rollers up and down perpendicularly to the advancing direction to form the waved shape in the tube. Militaru et al further discloses (see Figure 4) a second set of rollers which operates identically to the first set of oppositely rotating rollers, but which is oriented at an angle (preferably 90°) thereto. There is thus a phase difference between the two sets of rollers of a quarter period, meeting the claimed limitation of "as much as a half period".

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6, 14, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,697,556 to Militaru et al. Militaru et al does not disclose forming any kind of a sheath surrounding the metal tube. Insulative and protective outer sheathings are fairly standard, however, in tubular-type optical fiber cables. The provision of an outer sheath on the metal tube comprising the Militaru et al optical fiber cable would thus have been obvious to a person of ordinary skill in the art. Since the

metal tube is the essential component of the cable, that component which determines the wavy shape thereof, the shape of any outer sheath would not affect the operability of the cable. To have the sheath have either a longitudinally straight shape, or a waved shape corresponding to the shape of the tube, would thus be an obvious choice for the person of ordinary skill in the art.

Claims 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Militaru et al, the closest prior art document of record, does not disclose or suggest that the rollers are eccentric cams, or rollers having toothed star-like sections engaged to each other, or rollers having a polygonal section. Militaru et al further does not disclose or suggest that the rollers are elastically biased using an elastic means.

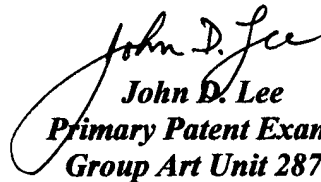
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Other wavy tube structures for optical fiber cables (and methods for forming such tubes) can be seen in U.S. Patent 4,690,499 to Taylor et al, U.S. Patent 4,846,566 to Barnett et al, U.S. Patent 5,274,726 to Rawlyk et al, and published PCT International Application WO 00/77552 A1 to Staschewski.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to

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consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874